Amendments to the Specification:

[0029] FIG 2 is a schematic cross-sectional view of a polishing apparatus suitable for use in the apparatus shown in FIG 1 for polishing a surface of a wafer in accordance with the present invention. The apparatus includes a lower polishing module 144 that in turn includes a platen ~~146~~ 166 and a polishing surface or pad 148. An upper polishing module 150 includes a body 152 and a retaining ring 154 which retains wafer 156 during polishing.

[0032] Lower polishing module 144 is generally configured to cause the polishing surface to move. By way of example, lower module 144 may cause the polishing surface to rotate, translate, orbit, or any combination thereof. For example, lower module144 may be configured such that platen ~~146~~ 166 orbits at a radius of approximately one-eighth inch to one inch about an axis 164 at, for example, 30 to 2000 orbits per minute while simultaneously causing platen ~~146~~ 166 to dither or partially rotate. In this case, material is removed primarily from the orbital motion of ~~module 146~~ platen 166. This allows a relatively constant speed between the wafer surface and the polishing surface to be maintained during a polishing process, and thus material removal rates are maintained relatively constant across the wafer surface.

[0044] FIG. 5 shows in some detail a side view of a portion of the lower polish head assembly144. The polish pad 148 is atop the platen 166 that, in turn, is atop the slurry manifold 174 and the polish bell 180. Conduits ~~172~~ 170 in the manifold 174 are also shown. An end point probe 190 is shown extending through the polish bell 180, the manifold 174, and into the platen 166. A light pin 192 is shown affixed to the platen 166 by a retaining screw 194, although the pin could alternatively be press fit into the platen. The light pin 192 is of a plastic, epoxy, or urethane material and extends through the platen, through holes 182 as shown in FIG. 4 and also through the polishing pad 148 when the pad is in place. Because the light pin initially extends through the polishing pad 148, the pin can be used as a registration guide for providing proper position of the pad 148 on the platen 166.

[0046] FIG. 6 shows an exploded illustration of the light pin 192 and end point probe 190 that more clearly shows the relationship among the polish bell 180, manifold 174, platen ~~164~~ 166,

the pin 192 and the probe 190. The shoulder 196 of the end point probe 190 is clearly shown, as is the hollow portion ~~196~~ 197 of the light pin 192. The hollow portion ~~196~~ 197 of the light pin 192 allows the narrowed top of the end point probe 190 to be seated flush with the top of the platen as can be seen in FIG. 5. The flush mounting of the end of the end point probe provides an improvement in the ability of the end point detector (not shown) to detect the completion of the polishing process as earlier discussed. An O-ring seal 198 is shown that prevents fluid from getting past the top of the polishing bell 180. Another seal 200 seals the end point probe from the manifold 174 and platen 166.

[0048] The foregoing arrangement of light pin and probe offers several advantages. Since the end point probe 190 is accessible from the bottom of the polishing bell, it is not necessary to disassemble the bell, manifold and platen to replace the probe. Additionally, the light pin can be accessed for replacement in two ways; the manifold can be removed from the platen and the light pin 192 released from the platen by removing the retaining screw 194, or the manifold can remain in place and the probe seal is removed ~~form~~ from the manifold. The end point probe 190, being mounted on the bell, remains in place. This arrangement is advantageous in requiring little or no disassembly to change pins or probes.\

[0051] FIG. 8 illustrates a platen retaining latch that latches the platen-manifold combination to the polishing bell 180. A latch 210 is bolted by a bolt 212 that is inserted through a hole ~~214~~ 230 in a recess 216 machined into the periphery of the manifold 174. Bolt 212 is subsequently secured into the platen ~~166.A~~ 166. A torque pin 214 is mounted on the polishing ~~bell180~~ bell 180 such that when the manifold is brought into contact with bell 180 the torque ~~bolt~~ pin protrudes through a hole 218 in the recess 216. In FIG. 9 it can be seen that the latch 210 captures the platen/manifold assembly in the vertical axis. The ~~bell~~ torque pins capture the bell 180 in the XY plane as they cooperate with corresponding holes in the periphery of the manifold. The use of the clamping and manifold assembly techniques eliminates the need for the v-band clamps and provide a method for quickly disassembling the platen away from the bell assembly.

[0052] In prior art polishing systems, it was relatively difficult to remove the polishing pad 148 from the platen, the operator frequently having to resort to scraping the edge of the pad with a knife to loosen the pad from the platen. In FIG. 4 there was described a platen/manifold combination having a series of holes therethrough. One or more of the holes 184 are provided for the purpose of allowing a fast and easy mechanism for removing pads from platens. As can be seen in FIG. 10 holes 184 have been provided through the platen 166 and the manifold 174 near the periphery of the polishing pad 148. A key or punch 224 may be inserted through one of the holes 184 in order to lift an edge of the pad 148 from the platen 166 thereby easing the task of securing the pad for removal. The ability to easily work the plastic platen and manifold material or alternatively ceramic or coated materials allows additional holes to be drilled and recesses to be machined <u>more easily</u> than do prior platen and manifold materials.